CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SANTA ANA REGION

ORDER NO. R8-2002-0085

AMENDING WASTE DISCHARGE REQUIREMENTS
FOR
BADLANDS SANITARY LANDFILL
RIVERSIDE COUNTY WASTE MANAGEMENT DEPARTMENT

The California Regional Water Quality Control Board, Santa Ana Region (hereinafter Regional Board), finds that:

1. The County of Riverside Waste Management Department (hereinafter discharger) has operated the Badlands Sanitary Landfill (BSL) since 1965. The site is located in the San Timoteo Badlands, Section 32, T2S, R2W, and portions of Sections 4 and 5, T3S, R2W, SBB&M. The site consists of 1093.2 acres and is designated as a Class III landfill. One-hundred-and-fifty (150) acres are currently permitted to accept only non-hazardous municipal solid waste (MSW).

2. Prior to 1981, the discharger operated the BSL under the waste discharge requirements (WDRs) contained in Resolution No. 65-13. To reflect changes in the policies for the operations of sanitary landfills, Order No. 81-124 was adopted to revise and update Resolution No. 65-13. Order No. 81-124 was adopted by the Regional Board for landfill operations at the BSL on June 12, 1981.

3. On July 19, 1991, Order No. 91-105 was adopted by the Regional Board for landfill operations at the BSL. Order No. 91-105 revised the WDRs contained in Order No. 81-124 to include changes to the Water Quality Control Plan and to conform to Title 23 of the California Code of Regulations (CCRs), Division 3, Chapter 15. Order No. 91-105 was subsequently amended by Orders No. 93-57 and 94-17, adopted by the Regional Board on September 10, 1993 and March 11, 1994, respectively, to incorporate new federal regulations (Title 40, Code of Federal Regulations [40CFR], Part 258, known as Subtitle D), and to prescribe uniform drainage and erosion control system requirements for MSW landfills.

4. Effective July 18, 1997, the provisions for MSW landfills in Chapter 15 were replaced by Title 27 of the CCRs (Title 27), the combined State Water Resources Control Board / California Integrated Waste Management Board AB 1220 regulations for discharges of waste to land.

5. On November 20, 1998, Orders No. 93-57 and 94-17 were rescinded and replaced by Order No. 98-99. Order No. 98-99 is a blanket WDR requiring all municipal solid waste landfills (MSWLFs) to comply with federal Subtitle D regulations and Title 27 requirements.

6. Provision C.2 of Order No. 98-99 stipulates that all MSWLF waste containment systems installed beyond the October 9, 1993 landfill footprint must include a composite liner consisting of an upper synthetic flexible membrane liner (FML) that is at least 60-mils thick (if high density polyethylene is used), and a lower component of soil that is at least 2-feet thick and that has a hydraulic conductivity of no more than $1x10^{-7}$ cm/s. Provision C.2 of Order No. 98-99 allows engineered alternatives to the prescriptive composite liner, provided that certain conditions are met.

7. On July 29, 2002, the discharger submitted a Joint Technical Document (JTD), Amendment No. 1, requesting the Regional Board's approval for the use of an engineered alternative to the prescriptive liner design. The engineered alternative design (EAD) is proposed for both bottom and sideslope liners of the remaining floor and sideslope areas that will be lined at the BSL. The profiles of the prescriptive standard design (PSD) and the EAD liner systems are described below, starting from the bottom up:

Bottom Liner System

PSD Liner System	EAD Liner System
1. Prepared subgrade	1. Prepared subgrade
2. 24-inch $\leq 1x10^{-7}$ cm/s low permeability layer	2a. 12-inch soil layer consisting of 1-inch minus material with a hydraulic conductivity $\leq 1 \times 10^{-5}$ cm/s
	2b. 40-mil GCL hydration barrier (textured both sides)
	2c. Geosynthetic Clay Liner (GCL)
3. 60-mil HDPE liner	3. 60-mil HDPE liner (textured both sides)
4a. Geotextile fabric 4b. 12-inch $\leq 1x10^{-2}$ cm/s drainage layer	4. 12-inch leachate collection recovery system (LCRS) Drainage Layer with a permeability of no less than 1×10^{-2} cm/s (1-inch minus clean gravel with less than 2 percent fines with no angular or subangular soil for particles greater than 3/8-inch in diameter)
5. Geotextile filter fabric	5. 8 oz. Geotextile filter fabric
6. 24-inch protective soil layer	6. 24-inch protective soil layer (3-inch minus for the lower 12-inches and 6-inch minus for the upper 12-inches)
7. Refuse placement	7. Refuse placement

Sideslope Liner System

PSD Liner System	EAD Liner System
1. Prepared subgrade	1. Prepared subgrade
2. 24-inch with $1x10^{-7}$ cm/s low permeability layer	2. Needle punched, non-woven GCL[1]
3. 60-mil HDPE liner	3. 60-mil HDPE liner (single-sided textured geomembrane)
4a. Geotextile fabric	4. 24-inch protective soil layer/leachate drainage layer (1-inch minus material)
4b. 12-inch with $1x10^{-2}$ cm/s leachate drainage layer	
4c. Geotextile filter fabric	
4d. 24-inch protective soil layer	
5. Refuse placement	5. Refuse placement

8. Regional Board staff have evaluated JTD Addendum No. 1, which includes engineering analyses to demonstrate performance equivalency of the engineered alternative to the prescriptive standard design for the bottom and the sideslope liner systems. Based on the engineering reports provided to us, Regional Board staff have concluded that the engineered alternative liner systems for the bottom and the sideslope will satisfy the performance criteria as required under Provision C.2 of Order No. 98-99. It will also afford waste containment capability equal to or exceeding that provided by the prescriptive standard design, provided that certain provisions and monitoring requirements are met.

9. This order amends the existing waste discharge requirements for BSL to require the discharger to comply with certain provisions and monitoring requirements for construction of the waste containment system using the engineered alternative liner systems. The capability of the alternative liner systems to afford water quality protection equivalent to the prescriptive liner system depends largely on good construction quality assurance and quality control during the installation of these materials, and quality control of the liner materials used.

10. This project involves the amendment of waste discharge requirements for an existing facility for which waste discharge requirements need to be revised, and as such, is exempt from the California Environmental Quality Act (Public Resources Code, Section 21100 et seq.) in accordance with Section 15301, Chapter 3, Title 14, California Code of Regulations.

11. The Regional Board has notified the discharger and interested agencies and persons of the Board's intent to amend the waste discharge requirements previously adopted for the discharger, and has provided all notified parties with an opportunity to submit their written views and recommendations.

[1] Geosynthetic Clay Liners are factory manufactured, hydraulic barriers typically consisting of bentonite clay or other very low permeability clay materials, supported by geotextiles and/or geomembranes which are held together by needling, stitching and/or chemical adhesives.

12. The Regional Board, in a public meeting, heard and considered all comments pertaining to the proposed amendment to the existing waste discharge requirements for BSL.

IT IS HEREBY ORDERED THAT the discharger shall comply with the following:

1. The following requirements are hereby added as Provision C.2.(b) of Order No. 98-99 for the BSL:

   Compliance of the EAD composite bottom and sideslope liners with the performance criteria set forth in Provision C.2 of Order No. 98-99 shall be demonstrated when the following requirements are met:

   a. <u>For EAD Bottom Liner System</u>

      i. A Construction Quality Assurance/ Quality Control (CQA/ QC) program for the construction of the waste containment system using the EAD bottom liner system has been submitted and approved by Regional Board staff. The CQA/QC consultant is a party independent from the Owner, Contractor, and the product manufacturers;

      ii. The approved CQA/QC program for the EAD bottom liner system has been successfully implemented to eliminate or minimize, to the extent feasible, the manufacturing and installation defects in the synthetic FML. In no case shall the number of manufacturing or installation defects[2] exceed two per acre; and

      iii. A "good to excellent" contact between the FML and the underlying compacted soil has been achieved as verified by the approved CQA/QC program.

   b. <u>For EAD Sideslope Liner System</u>

      i. Detailed CQA/QC plans for the EAD sideslope liner system have been submitted and approved by Regional Board staff;

      ii. A good contact between the FML and the underlying GCL has been achieved as verified by the approved CQA/QC program; and

      iii. The submittal of daily reports to Board staff during the construction of the EAD bottom and sideslope liner systems at the site were in compliance with Items 1.a.ii, 1.a.iii, and 1.b.ii, above.

2. All other terms and conditions contained in the existing waste discharge requirements for the BSL that are not amended by this order shall remain in effect

[2] The definitions of the manufacturing and installation defects are provided by USEPA Hydrologic Evaluation of Landfill Performance (HELP) Model, User's Guide for Version 3.0.

and unchanged. Amended or revised requirements contained in this order supersede any conflicting provisions in the existing waste discharge requirements.

I, Gerard J. Thibeault, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an order adopted by the California Regional Water Quality Control Board, Santa Ana Region, on October 25, 2002.

Gerard J. Thibeault
Executive Officer

California Regional Water Quality Control Board
Santa Ana Region

October 25, 2002

STAFF REPORT

ITEM: *15

SUBJECT: Amendment to Existing Waste Discharge Requirements for Riverside County Waste Management Department, Badlands Sanitary Landfill, Order No. R8-2002-0085

DISCUSSION:

The Riverside County Waste Management Department (hereinafter discharger) owns and operates the Badlands Sanitary Landfill (BSL) located at 31125 Ironwood Avenue, Moreno Valley, California. The BSL is a Class III landfill that accepts non-hazardous municipal solid waste (MSW).

The discharger is currently regulated under Waste Discharge Requirements (WDRs) Orders No. 81-124, 91-105 and 98-99. Out of a total of 1093.2 acres at the site, 150 acres are currently permitted for landfill operations. Of the 150 acres, the discharger has constructed approximately 55 acres of lined landfill cells and one 37-acre unlined landfill cell that was constructed prior to implementation of the federal Resource Conservation and Recovery Act (RCRA) Subtitle D (40CFR 258) regulations. This amendment to the existing WDRs will apply to the next phase of construction and all future phases constructed within the remaining 58 acres at the BSL.

On July 18, 2002, the discharger submitted a Joint Technical Document (JTD), Addendum No. 1, to allow for the use of an engineered alternative liner system. Regional Board staff has reviewed JTD Addendum No. 1 and finds the engineered alternative liner system design to be consistent with the requirements of California Code of Regulations, Title 27. Regional Board staff believes that the proposed engineered alternative liner design, as presented in JTD Addendum No. 1, will afford waste containment capability equal to or exceeding that offered by the prescriptive standard liner design, provided that the Construction Quality Assurance (CQA) monitoring requirements and the other provisions specified in Order No. R8-2002-0085 are met.

RECOMMENDATION:

Adopt Order No. R8-2002-0085, as presented.

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